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1. Your reference — 30058 GB

2. Patent application number *(The Patent Office will fill in this part)* — 0219345.6

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Givaudan SA
Chemin de la Parfumerie 5
1214 Vernier
Switzerland

Patents ADP Number *(if you know it)* — 8408081001

If the applicant is a corporate body, give the country/state of its incorporation — Switzerland.

4. Title of the Invention — IMPROVEMENTS IN OR RELATED TO ORGANIC COMPOUNDS

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

Centre for Innovative Technology (Givaudan UK Ltd.)
76-80 Church Street, Staines
Middlesex TW18 4XR
United Kingdom

Patents ADP number *(if you know it)* — 8447815001

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Country	Priority application number *(if you know it)*	Date of filing *(day/month/year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day/month/year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:)*
a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
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Description	33
Claim(s)	1
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Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	
Request for preliminary examination and search *(Patents Form 9/77)*	1
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Any other documents *(please specify)*	

11. I/We request the ~~grant of a~~ patent on the basis of this application.

Signature → Date 20/08/02

12. Name and daytime telephone number of person to contact in the United Kingdom — Colin Brown (office time) Tel. No: 01/784417721

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IMPROVEMENTS IN OR RELATED TO ORGANIC COMPOUNDS

The present invention relates to a fragranced bleaching compositions which feature improved fragrance stability and which permit for the inclusion of a greater range of fragrance molecules.

Liquid bleaches, both hypochlorite and hydrogen peroxide based products, are commonly used in a variety of household cleaning, disinfecting and laundering products. Fragrances have been added to liquid bleaches to impart a pleasing scent, however, the number of fragrance molecules that are stable in liquid bleach systems is limited as they are degraded by the action of the bleach. Because of the inherent ability of a bleaching agent to destroy fragrance molecules, it is difficult to effectively perfume a bleaching composition so that the fragrance remains stable during storage and is available for effective delivery without previously being altered or destroyed by the bleach. Accordingly, there is a continued need in the art to improve upon the fragrance of bleach containing compositions in order to satisfy the consumers' needs.

Until now, fragranced bleach compositions have been based on oil-in-water microemulsions technology. For example US 6,114,298 discloses a fragranced disinfecting composition wherein droplets comprising an essential oil are dispersed in an aqueous phase containing disinfectant. Similarly, US Re 36,982 discloses a microemulsion of a D-limonene dispersed phase in an aqueous continuous phase containing hydrogen peroxide. Whereas both of these systems display good disinfecting properties they are not without shortcomings. In both systems, the oil droplets are finely dispersed in aqueous media. This presents a very high phase boundary surface area which increases the likelihood of fragrance contacting the aggressive disinfectant material. Accordingly, one may either be limited to using only those fragrance constituent that are stable in such media which would seriously impede the creativity of the perfumers, or one will have to accept higher fragrance degradation which will affect performance and is expensive.

Fragrance stability issues can be addressed by providing a fragranced bleach composition as two visually distinct phases, that is, a hydrophobic phase containing fragrance constituent, and an aqueous phase containing bleach constituent. Such a system essentially separates fragrance and bleach during storage. The relatively low surface area of the phase boundary compared to the emulsion system minimizes the incidence of fragrance constituent contacting the bleach. Prior to use however, the two phases should be mixed with shaking thereby to dispense a fragranced bleach composition. Constituents of the hydrophobic and aqueous phase may be selected such that after shaking and dispensing, the two phases quickly separate to further minimize contact between bleach and fragrance.

However, notwithstanding that such a system provides fragrance stability, applicant has found that the composition that is dispersed has such low viscosity that it does not cling well to the surface to be cleaned or disinfected. Therefore, there remains a need to provide fragranced bleach compositions that display improved fragrance stability and which, in use are sufficiently viscous to cling to the surfaces to which they are applied to provide good cleaning and disinfecting effect.

Accordingly, the invention provides in a first aspect a fragrance bleaching composition which composition contains at least two visually distinct phases, there being a hydrophobic phase containing a fragrance constituent and an aqueous phase containing a bleach constituent, the composition being provided with a thickening constituent adapted to impart to the composition when mixed and dispersed a viscosity such that the composition clings to a surface onto which it is dispensed, e.g. a viscosity of at least 5 cps.

The thickening constituent may be any agent or combination of agents that permits or ready separation of the visually distinct phases and which, upon shaking prior for dispensation, provides a viscosity to the composition of at least 5 cps.

Thickening constituents that may be used in the present invention may be selected from, any of a number of aqueous soluble or aqueous dispersible thickening agents which also

are resistant to, or which are not deleteriously affected by the presence of the bleach constituent can be used in this first aqueous phase. By way of non-limiting example, such include one or more of thickeners such as those based on polyacrylates (e.g., CARBOPOL®, available from B.F. Goodrich Co.); those based on naturally occurring or modified saccharides (e.g., cellulose based thickeners); those based on silicates (e.g., magnesium aluminum silicates); those based on gums (e.g., xanthan gum, guar gum, locust bean gum); those based on clays (e.g., laponite, bentonite); those based on ternary blends of amine oxides and alkyl sulfates as described above with clays; those based on blends of magnesium aluminum silicate with one or more gums; as well as those based on blends of one or more clays with one or more thickeners based on polyacrylates.

As mentioned above, prior to use, the fragranced bleaching composition of the invention may be shaken to intermix the two separable liquid phases prior to application to a hard surface, or application to another substrate. The fragranced bleaching composition of the invention is characterized in that upon standing at rest the formation of at least two visually distinct liquid phases may be visibly observed. These two or more visually distinct liquid phases may be continuous layers, and in particularly preferred embodiments, each phase which is visually distinguishable from the other by the use of the naked eye. What is to be understood by the term "visually distinct" is that two phases present in layers one above the other with a visible division or line of demarcation between the phases. Depending on the density of the hydrophobic phase the fragranced bleaching compositions of the invention are characterized in that the hydrophobic phase forms an upper layer or a lower layer respectivly. Preferably, the formation of visually distinct phases occur within about 6 hours, more preferably within about 2 to 4 hours, most preferably within 10 to 30 minutes.

Whereas, the thickening constituent has been specifically disclosed above with reference to the use of known thickening agents as additives to the composition, another means of providing the thickening constituent is contemplated by the present invention. Thus, the hydrophobic phase may be provided in the form of a water-in-oil microemulsion wherein a water insoluble oil provides a continuous hydrophobic phase containing the

fragrance constituent, and aqueous droplets are dispersed therein. The microemulsion is preferably formed separately of the aqueous phase which contains the bleach. This provides the requisite thickening, without concomitant addition of bleach to the dispersed aqueous phase. Alternatively however, the water-in-oil microemulsion phase and the aqueous phase may be formed in one pot whereupon some bleach will find its way into the dispersed phase. Such a system may be acceptable if bleach stable fragrance constituents are employed, or if a certain amount of fragrance degradation is acceptable. If the microemulsion is employed as the thickening constituent it may be used as an alternative, or in addition, to use known thickening agents.

The inventive compositions require a bleach constituent which may be a single bleach or a mixture thereof. Any bleach known to those skilled in the art may be suitable to be used herein including any chlorine bleach as well as any peroxygen bleach.

Suitable chlorine bleaches to be used herein in the present inventive compositions is provided by one or more hypochlorite compositions yields a hypochlorite species in aqueous solution, the hypochlorite ion being chemically represented by the formula (OCl^-). The hypochlorite ion is a strong oxidizing agent and, for this reason, materials which yield this species are considered to be powerful bleaching and/or disinfecting agents. Exemplary useful bleaching compositions which yield a hypochlorite species in aqueous solution include alkali metal and alkaline earth metal hypochlorites, hypochlorite addition products, chloramines, chlorimines, chloramides, and chlorimides. Specific examples of compounds of this type include lithium hypochlorite, calcium hypochlorite dihydrate, monobasic calcium hypochlorite, dibasic magnesium hypochlorite, chlorinated trisodium phosphate dodecahydrate, potassium dichloroisocyanurate, trichlorocyanuric acid, sodium dichlorosiocyanurate, trichlorocyanuric acid, sodium dichloroisocyanurate, sodium dichloroisocyanurate dihydrate, 1,3-dichloro-5.5-dimethylhydantoin, N-chlorosulfamide, Chloramine T, Dichloramine T, Chloramine B and Dichloramine B. Most preferably, as the hypochlorite bleach constituent, hypochlorites such as alkali metal hypochlorites, as well as hypochlorite precursors are used. Exemplary hypochlorite producing species, include by way of non-limiting example, halogen bleaches selected from the group consisting of

the alkali metal and alkaline earth salts of hypohalite, haloimines, haloimides and haloamides. as the hypochlorite bleach constituent are sodium, potassium, lithium and calcium hypochlorites. Particularly preferred is sodium hypochlorite which is effective, and widely commercially available.

In the embodiments of the present invention wherein the compositions comprise a peroxygen bleach, preferred peroxygen bleaches for use are hydrogen peroxide or sources thereof. As used herein a source of hydrogen peroxide refers to any compound which produces active oxygen when said compound is in contact with water. Suitable water-soluble sources of hydrogen peroxide for use herein include percarbonates, preformed percarboxylic acids, persilicates, persulphates, perborates, organic and inorganic peroxides and/or hydroperoxides. Suitable organic and inorganic peroxides/hydroperoxides for use in the compositions according to the present invention include diacyl and dialkyl peroxides/hydroperoxides such as dibenzoyl peroxide, t-butyl hydroperoxide, dilauroyl peroxide, dicumyl peroxide, and mixtures thereof. Suitable preformed peroxyacids for use in the compositions according to the present invention include diperoxydodecandioic acid DPDA, magnesium perphthalatic acid, perlauric acid, perbenzoic acid, diperoxyazelaic acid and mixtures thereof. Further hydrogen peroxide sources which may be used in the present inventive compositions are described in detail, and which description is herein incorporated by reference, in Kirk Othmer's Encyclopedia of Chemical Technology, 4th Ed (1992, John Wiley & Sons), particularly at Vol. 4, pp. 271-300 "Bleaching Agents (Survey)".

Accordingly, the compositions according to the present invention typically comprise from 0.1% to 20%, preferably from 0.25% to 15%, more preferably from 0.5% to 8% by weight of the total composition of an active bleach constituent or mixtures thereof.

The inventive compositions also require an a water insoluble oil constituent which forms part of the hydrophobic phase containing the fragrance constituent. Preferably, the water insoluble oils of the present invention are hydrophobic, and more preferably exhibit substantially no surface activity. The water insoluble oil constituent can be any water insoluble oil which remains in a fluid state at the temperatures range experienced in a

household conditions (approx. 10°C or in excess thereof, and at normal atmospheric pressure). Preferably, the water insoluble oil constituent can be one or more water insoluble oils which, at atmospheric pressure exhibit a boiling point in the range of from about 70°C – 170°C. By way of non-limiting example, water insoluble oils may be used in the inventive compositions: paraffinic hydrocarbons, silicone oils, ester oils, sugar ester oils or oily sugar derivative, natural oils such as vegetable oils, those derived from mineral sources, those derived from petroleum sources, as well as mixtures thereof. Preferably , the water insoluble oil has a vapor pressure of greater than 0.1 mm Hg at 25°C.

The paraffinic hydrocarbons may be a single hydrocarbon species, but is more usually provided as technical grade mixture of several hydrocarbon species. Such paraffinic hydrocarbons are generally described as being saturated hydrocarbons containing from 8 to 20 carbon molecules. These may be straight chained, branched or may form rings including single rings as well as fused rings.

Further exemplary commercially available water insoluble oils include the Esso Marcol® technical grade range of oils, such as the Silkolene® medicinal Sirius range (*e.g.*, M40, M70, and M180). The molecular weight of such oils is typically within the range 150 to 400, and these are believed to be derived from mineral or petroleum sources.

Further oils which may be used as the water insoluble oils in the present invention include those disclosed in WO 00/70004 and in US Published Patent Application 20020055452, which is incorporated by reference as if recited in full herein. These include sugar ester oils, sucrose polyesters (SPE), and oily sugar derivatives. Preferably, the sugar ester oils are esters containing straight or branched, saturated or unsaturated carboxylic acids. The sugar ester oil or oily sugar derivative is a liquid derivative of a cyclic polyol, of a reduced saccharide or mixtures thereof, the resulting derivatives resulting from 35 to 100% of the hydroxyl groups in the polyol or in the saccharide being esterified or etherified. In the present invention, the derivative has two or more ester or ether groups independently attached to a C_8-C_{22} alkyl or alkenyl chain. Oily

sugar derivatives suitable for use in the present invention includs sucrose pentalaurate, sucrose tetraoleate, sucrose pentaerucate, sucrose tetraerucate, sucrose, pentaoleate, and the like. Exemplary commercially available materials include some of the Ryoto® series available from Mitsubishi Kagaku Foods Corporation, e.g. Ryoto® ER290. Exemplary commercially available ester oils include the saturated ester oils (*ex.* Unichema) and the unsaturated sugar ester oils (*ex.* Mitsubishi Kagaku). It is preferred that the ester oils of the invention be hydrophobic. It is further preferred that the ester oil be saturated (*i.e.*, hardened) in nature, unless it is a sugar ester oil or a plant derivative, in which case, unsaturation is preferred.

Especially useful ester oils as the water insoluble oils in the present invention include the fatty ester of a monohydric or polyhydric alcohol having from 1 to about 24 carbon atoms in the hydrocarbon chain and monocarboxylic or polycarboxylic acids having from 1 to about 24 carbon atoms in the hydrocarbon chain, with the proviso that the total number of carbon atoms in the ester oil is equal to or greater than 16 and that at least one of the hydrocarbon radicals in the ester oil has 12 or more carbon atoms. Commercially available ester oils most suitable for use in the present invention include materials sold as PRIOLUBES® (ex. Unichema). Specific examples include, PRIOLUBE® 1407, PRIOLUBE® 1447, PRIOLUBE® 1415, PRIOLUBE® 1446, PRIOLUBE® 1427, PRIOLUBE® 1445, PRIOLUBE® 2045, PRIOLUBE® 3988, PRIOLUBE® 3987, PRIOLUBE® 2091, ESTOL® 1545, and ESTOL® 1527. Of these, ESTOL® 1545, which is a 2-ethyl hexyl stearate, is particularly useful.

Further useful as the water insoluble oil are one or more terpene based oils. These terpene containing oils preferably include mono- and bicyclic monoterpenes, i.e., those of the hydrocarbon class, which include, for example, the terpinenes, terpinolenes, limonenes, pinenes and mixtures thereof. Exemplary useful terpenes include d-limonene, and the mixture of terpene hydrocarbons obtained from the essence of oranges, e.g., cold-pressed orange terpenes and orange terpene oil phase ex fruit juice, and the mixture of terpene hydrocarbons expressed from lemons and grapefruit. The foregoing terpene containing oils are include derivatives of citrus fruits and citrus fruit by-products and, therefore, are naturally occurring materials. Numerous other terpene

hydrocarbons are known to those skilled in the art and may be used to prepare the fragranced bleaching compositions of the present invention. Particularly useful and preferred are mixtures of terpene containing oils obtained from the essence of oranges, e.g., cold-pressed orange terpenes and orange terpene oil phase ex. fruit juice, and the mixture of terpene hydrocarbons expressed from lemons and grapefruit. Of these terpenes, d-limonene is the most preferred.

The fragranced bleaching compositions of the invention may also comprise as the hydrophobic phase or part of the hydrophobic phase a pine oil constituent. Pine oil is an organic oil, and is a complex blend of oils, alcohols, acids, esters, aldehydes and other organic compounds. These include terpenes which include a large number of related alcohols or ketones. Some important constituents include terpineol, which is one of three isomeric alcohols having the basic molecular formula $C_{10}H_{17}OH$. Useful pine oils which may be used as the water insoluble oil constituent include synthetic pine oil, and also include steam distilled and sulfate pine oils, and will generally contain a higher content of turpentine alcohols. Other important compounds include alpha- and beta-pinene (turpentine), abietic acid (rosin), and other isoprene derivatives.

Particularly effective pine oils which may be used as the water insoluble oil constituent which are presently commercially available include Glidco® Pine Oil 60 (believed to contain approximately 60% terpene alcohols), Glidco® Pine Oil 80 (believed to contain approximately 80% terpene alcohols) Glidco® Pine Oil 150 (believed to contain approximately 85% terpene alcohols); Glidco® Terpene SW (believed to contain approximately 75% terpene alcohols); as well as Glidco® Terpineol 350 (believed to contain approximately 100% terpene alcohols). Each of these may be obtained from available from Glidco Organics Corp., Jacksonville, FL (USA). Other products which can contain up to 100% pure alpha-terpineol, may also be used in the present invention.

These terpene containing oil constituents are typically supplied as technical grade mixtures which may be and are often formulated with small amounts, e.g., 0.1%wt. (weight percent,) of auxiliary materials such as one or more stabilizers, e.g., antioxidants such as butylated hydroxytoluene. Such auxiliary materials are included within the

meaning of the term "terpene containing oil", as employed in this specification and the accompanying claims. It is also to be understood that mixtures of two or more terpene containing oil constituents may also be used to form the terpene containing oil in the compositions according to the invention.

The inventors have also observed that where the water insoluble oil constituent consists of, or includes one or more terpenes, that some or all of the fragrance constituents may be omitted. This is due to the fact that terpenes do provide some fragrancing effect, which is a technical effect known to those skilled in the art.

The water insoluble oil constituent may be present in the fragranced bleaching compositions taught herein in amounts of from about 0.5 % by weight to up to about 50 %wt., preferably from 0.5 %wt. to 25%wt., and most preferably water insoluble oils form 1%wt. to 15 %wt. of the fragrance bleaching compositions of which they form a part.

According to certain preferred embodiments, the water insoluble oil constituent is solely a d-limonene constituent, a pine oil constituent, an orange oil terpene constituent, or a paraffinic hydrocarbon.

According to certain particularly preferred embodiments, the water insoluble oil constituent is one or more selected from: d-limonene (boiling point approx. 154°C); cycloparaffinic hydrocarbons (boiling point range of approx. 75°C -85°C) and which further preferably contain a significant proportion (i.e., in excess of 80%, preferably in excess of 90%) of cycloparaffinic hydrocarbons containing 6 carbon atoms; and isoparaffinic hydrocarbons (boiling point range of approx. 113°C – 143°C).

Although optional, the present inventors have found that is frequently helpful to include a cosolvent in addition to the water soluble oil constituent. Such cosolvents can be any of variety of further hydrocarbon that liquids including for example our hydrocarbons, particularly C_2-C_6, linear, or branched alcohols or polyalcohols (glycols). When present, such can be included in any effective amount and generally, are present up to about

8%wt. based on the total weight of the fragranced bleaching compositions, but desirably are present in the range of from 4.8%wt. to 6.0%wt.

The hydrophobic phase of the inventive compositions also contains the fragrance constituent. The fragranced bleach composition according to the present invention may contain all kinds of fragrance molecules selected from the extensive range of natural and synthetic molecules currently available, such as essential oil, alcohols, aldehydes and ketones, ether and acetals, ester and lactones, macrocycles and heterocycles, and/or in admixture with one or more ingredients. However to limit the migration of the fragrance composition from the hydrophobic phase to the aqueous phase comprising the bleach constituent, water soluble fragrance molecules are preferably avoided. The aqueous solubility of a fragrance molecule is conventionally measured using a number of different procedures such as for example the procedure disclosed in Etzweiler et al., Analytical Chemistry, Vol. 67, No.3 (1995) the resulting amount being expressed in grams per gram of solution of the fragrance; or it may be determined from the partition coefficient of the fragrance between octanol and water, expressed as log P. Log P may be measured directly but more conveniently, it may be calculated from the structure of the molecule using one of the several commercially available software programs, such as ACD Software . The calculated value is abbreviated to clogP. Accordingly, preferred fragrance molecules useful in the present inventive composition have a aqueous solubility below 20000 ppm, preferably below 10000 ppm, more preferably below 5000 ppm, but most preferably below 2000 ppm. Thus, fragrance molecules, such as phenylethylalcohol and diethylmalonate are preferably to be avoided. Examples for such natural and synthetic fragrance constituents which may be used in the inventive composition are listed e.g. in "Perfume and Flavor Materials of Natural Origin", S. Arctander, Ed., Elizabeth, N.J., 1960 and "Perfume and Flavor Chemicals", S. Arctander, Ed., Vol. I & II, Allured Publishing Corporation, Carol Stream, USA, 1994. The fragrance constituent may be present in any amount which is effective in providing a desired fragrance to a consumer product, and at the same time which is miscible within the second hydrophobic phase. Naturally, the specific amount can vary but generally good results are obtained wherein the fragrance constituent is present in at least about 0.05 %wt. preferably however, the fragrance constituent is present in an amount of from

0.1 %wt. to 10 %wt., more preferably from 0.2 % wt. to 5 %wt. naturally however, these ranges are provided by way of illustration, and that the lesser or even greater amounts of a fragrance constituent may be included in an inventive composition.

The compositions according to the invention may include a surfactant constituent, which may be one or more surfactants. These surfactants may utilized in their free form or may be used as salts with any salt-forming counterion known to the art. Exemplary counterions include alkali metal or alkali earth metal counterions such as Na, K, Li, Cl, as well as NH_4, amine, and the like.

The surfactant constituent may include one or more nonionic surfactants based on alkoxylated alcohols or alkoxylated phenols, as well as salt forms thereof. Exemplary useful nonionic alkoxylated alcohols and alkoxylated phenols include many of which are known to the art, and include one or more alkoxylated phenols, such as ethoxylated phenols, as well as ethoxylated and/or propoxylated and/or butoxylated alcohols formed by condensation of either an alkyl phenol or an aliphatic alcohol with sufficient ethylene oxide and/or propylene. Such ethoxylated alcohols, propoxylated alcohols, and butoxylated alcohols as well as ethoxylated phenols, propoxylated phenols, and butoxylated phenols are well known and may be formed by condensation of an alkyl phenol, an aliphatic alcohol, or mixtures thereof, with sufficient alkylene oxide to produce a compound having a the desired degree and type of alkoxylation. Preferably the number of alkylene oxide units are present in an amount sufficient to insure solubility of the compound in an aqueous composition of this invention or in any dilution thereof. More preferably the alkoxylated alcohols and phenols are produced by condensation of about 4-16 (more preferably 8-13), moles of ethylene oxide, propylene oxide and/or butoxylated oxide with 1 mole of a parent compound (i.e. alkyl phenol or aliphatic alcohol). As known to those skilled in the art, the number of moles of alkylene oxide which are condensed with one mole of parent compound depends upon the molecular weight of the hydrophobic portion of the condensation product. The parent compounds that may be combined with the alkylene oxide may include one or more of the following:

(A) an alkyl phenol having about 1-15, and preferably 7-10, carbon atoms (saturated or unsaturated) in the alkyl group (including phenol, methyl phenol (cresol), ethyl phenol, hexyl phenol, octyl phenol, dioctylphenol, nonylphenol, dodecylphenol, and the like); and

(B) a primary, secondary, or tertiary aliphatic alcohol having about 10-20, and preferably 11-15, carbon atoms, (including decyl alcohol, dodecyl alcohol, tridecyl alcohol, hexadecyl alcohol, octadecyl alcohol, and the like).

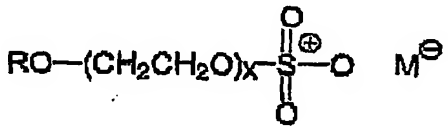
Illustrative examples of these preferred nonionic alkoxylated phenol surfactants and/or alkoxylated alcohol surfactants include one or more of those available under the tradename of NEODOL® , presently commercially available from the Shell Oil Company; TERGITOL®, presently commercially available from Union Carbide, and POLYTERGENT®, presently commercially available from the Olin Chemical Co., and IGEPAL® presently commercially available from the Rhône-Poulenc Co. Specific examples of such useful nonionic surfactants include NEODOL® 25-3, which is believed to be a linear C_{12}-C_{15} linear primary alcohol condensed with 3 moles of ethylene oxide per mole of alcohol; NEODOL® 25-7, which is believed to be a linear C_{12}-C_{15} linear primary alcohol condensed with 7 moles of ethylene oxide per mole of alcohol; NEODOL® 25-9, which is believed to be a linear C_{12}-C_{15} linear primary alcohol condensed with 9 moles of ethylene oxide per mole of alcohol; NEODOL® 25-12, which is believed to be a linear C_{12}-C_{15} linear primary alcohol condensed with 12 moles of ethylene oxide per mole of alcohol; TERGITOL® 15-S-7, believed to be a random secondary C_{11}-C_{15} alcohol condensed with 7 moles of ethylene oxide per mole of alcohol; TERGITOL® 15-S-9, believed to be an alkoxypolyethylenoxyethanol which may be represented by the formula $C_{11\text{-}15}H_{23\text{-}31}O(CH_2CH_2O)_nH$ having a degree of ethoxylation on a mole/mole average of 8.9, POLYTERGENT® SL-22, believed to be an alkoxylated linear aliphatic alcohol; POLYTERGENT® SL-62, also believed to be an alkoxylated linear aliphatic alcohol, as well as mixtures thereof. Exemplary alkoxylated alkyl phenols include those presently commercially available under the trade name IGEPAL®, and which are described to be octyl and nonyl phenols. Specific compositions include: IGEPAL® CA-210 which is described as an ethoxylated octyl phenol having an average of 1.5 ethoxy groups per molecule, and IGEPAL® CA-420

which is described as an ethoxylated octyl phenol having an average of 3 ethoxy groups per molecule.

Preferably, when present, the nonionic surfactant constituent is an alkoxylated alcohol constituent which even more preferably is one or more alkoxylated primary or secondary alcohols surfactant compositions.

When present, these nonionic surfactants based on alkoxylated alcohols and/or alkoxylated phenols may be present in the fragranced bleaching compositions in amounts of from about 0.001 % by weight to up to about 7%wt., preferably from 3 %wt. to 6%wt., and most preferably in 4%wt. to 5%wt.

The surfactant constituent may include one or more anionic surfactants based on alkyl sulfates, as well as salt forms thereof. Generally such alkyl sulfates may be represented by the formula:



wherein:

R is an straight chain or branched alkyl chain having from about 8 to about 18 carbon atoms, saturated or unsaturated, and the longest linear portion of the alkyl chain is 15 carbon atoms or less on the average,

M is a cation which makes the compound water soluble especially an alkali metal such as sodium, or is ammonium or substituted ammonium cation, and

x has a value of from 0 to about 4.

Most preferred are the non-ethoxylated C_{8-16} primary and secondary alkyl sulfates. Exemplary commercially available alkyl sulfates include those sold as RHODAPON® (ex. Rhône-Poulenc Co.) as well as STEPANOL® (ex. Stepan Chemical Co.) surfactants. Preferred alkyl sulfates include 2-ethylhexyl sulfate.

When present, these anionic surfactants based on alkyl sulfates may be present in the fragranced bleaching compositions in amounts of from about 0.001 % by weight to up to about 7 %wt., preferably from 1 %wt. to 6 %wt., and most preferably in 1.4 %wt. to 5.5 %wt.

The surfactant constituent may include one or more one or more anionic surfactants based on one or more of: alkyl sulfosuccinates, alkyl ether sulfosuccinates, alkylamide sulfosuccinates, alkyl sulfosuccinamates, as well as salt forms thereof. Generally, the alkyl or acyl radical in these various compounds comprise a carbon chain containing 12 to 20 carbon atoms. Many such anionic surfactants are known to the art and are available from a variety of sources, including materials presently commercially available under the tradename ALKASURF® (Rhône-Poulenc Co., Princeton NJ) as well as those presently commercially available under the tradename MONAWET® (Mona Industries, Paterson NJ). By way of illustrative example, these include the following: ALKASURF® SS-MA-80, which is described to be a sodium dihexyl sulfosuccinate, ALKASURF® SS-NO, which is described to be tetrasodium N-alkyl sulfosuccinamate, ALKASURF® SS-O, which is described to be sodium dioctyl sulfosuccinate, ALKASURF® SS-OA-HE described to be a disodium oleyl amido polyethyleneglycol-2 sulfosuccinate, ALKASURF® SS-TA, disclosed as being sodium N-octadecyl sulfosuccinamate, ALKASURF® SS-L7DE, which is described as being a sodium sulfosuccinate ester of lauric diethanolamide, ALKASURF® SS-L9ME, which is described as being a sodium sulfosuccinate ester of lauric monoethanolamide, ALKASURF® SS-L-HE, which is disclosed to be sodium di-isobutyl sulfosuccinate, MONAWET® MB-45, described to be diisobutyl sodium sulfosuccinate, MONAWET® MM-80, described to be dihexyl sodium sulfosuccinate, MONAWET® MO-65-150, which is described to be dioctyl sodium sulfosuccinate, MONAWET® MO-70 and MONAWET® MO-80, both disclosed to be dioctyl sodium sulfosuccinate, MONAWET® MT, described to be di-tridecyl sodium sulfosuccinate, MONAWET® SNO-35, described to be a tetrasodium salt of N-(1,2,dicarboxyethyl)N-octadecyl sulfosuccinimate, as well as MONAWET® TD-30, described to be an ethoxylated fatty alcohol, half ester of sulfosuccinate acid.

When present, these surfactants based on one or more of alkyl sulfosuccinates, alkyl ether sulfosuccinates, alkylamide sulfosuccinates, alkyl sulfosuccinamates or salt thereof may be present in the fragranced bleaching compositions in amounts of from about 0.001 % by weight to up to about 16 %wt., preferably from 2.5 %wt. to 15 %wt., and most preferably in 1.7 %wt. to 14.1 %wt.

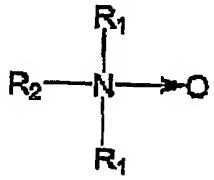
The surfactant constituent may include one or more surfactants based on amine oxides. One general class of useful amine oxides include alkyl di (lower alkyl) amine oxides in which the alkyl group has about 10-20, and preferably 12-16 carbon atoms, and can be straight or branched chain, saturated or unsaturated. The lower alkyl groups include between 1 and 7 carbon atoms. Examples include lauryl, dimethyl amine oxide, myristyl dimethyl amine oxide, and those in which the alkyl group is a mixture of different amine oxide, dimethyl cocoamine oxide, dimethyl (hydrogenated tallow) amine oxide, and myristyl/palmityl dimethyl amine oxide.

A further class of useful amine oxides include alkyl di (hydroxy lower alkyl) amine oxides in which the alkyl group has about 10-20, and preferably 12-16 carbon atoms, and can be straight or branched chain, saturated or unsaturated. Examples are bis(2-hydroxyethyl) cocoamine oxide, bis(2-hydroxyethyl) tallowamine oxide; and bis(2-hydroxyethyl) stearylamine oxide.

Further useful amine oxides include those which may be characterized as alkylamidopropyl di(lower alkyl) amine oxides in which the alkyl group has about 10-20, and preferably 12-16 carbon atoms, and can be straight or branched chain, saturated or unsaturated. Examples are cocoamidopropyl dimethyl amine oxide and tallowamidopropyl dimethyl amine oxide; and

Additional useful amine oxides include those which may be referred to as alkylmorpholine oxides in which the alkyl group has about 10-20, and preferably 12-16 carbon atoms, and can be straight or branched chain, saturated or unsaturated.

Preferably the amine oxides present in the composition are alkyl di (lower alkyl) amine oxides as denoted above and which may be represented by the following structure:



wherein each:

R_1 is a straight chained C_1-C_4 alkyl group, preferably both R_1 are methyl groups; and,

R_2 is a straight chained C_{10}-C_{16} alkyl group, preferably is C_{12}-C_{14} alkyl group.

Each of the alkyl groups may be linear or branched, but most preferably are linear. Technical grade mixtures of two or more amine oxides may be used, wherein amine oxides of varying chains of the R_2 group are present. Preferably, the amine oxides used in the present invention are those in which both R_1 groups are methyl and wherein the R_2 groups which are at least 85% $C_{10} - C_{16}$ alkyl groups. Still more preferably the R_2 groups are at least 70% $C_{12} - C_{14}$ alkyl groups, with 90% of the remaining R_2 groups being $C_{10} - C_{16}$ alkyl groups. Most preferably, in the amine oxides used in the present invention, both R_1 groups are methyl and at least 85%, still more preferably at least 90% of the R_2 groups are $C_{12} - C_{14}$ alkyl groups with all of the remaining balance, if any, to 100% being $C_{10} - C_{16}$ alkyl groups.

When present, these surfactants based on amine oxides may be present in the fragranced bleaching compositions in amounts of from about 0.001%wt. to up to about 12%wt., preferably from 9%wt. to 11%wt., and most preferably in 9.7 %wt. to 10.1 %wt. In certain preferred embodiments wherein the surfactant constituent comprises both an amine oxide and an alkali metal sulfate, these surfactants are desirably present in a respective weight ratio of 5:1.

Surfactants may act as cleaning agent when the composition is dispensed onto a surface to be cleaned. Surfactants may also act in whole or in part as a thickening constituent.

As an adjunct to the surfactant constituent, one or more materials useful as cosurfactants may additionally be present. Examples of useful cosurfactants include long chain unsaturated fatty acids which are useful as cosurfactant, in particular C_{16}-C_{18} unsaturated fatty acids. Preferred cosurfactants include decanoic acid, dodecanoic acid, palmitic acid, lauric acid, myristic acid, stearic acid, behenic acid, oleic acid, eicosanoic acid, tallow fatty acid, coco fatty acid, soya fatty acid, and mixtures thereof. Of these the most preferred are selected from oleic acid and lauric acid, with oleic acid being particularly preferred. When present, the cosurfactants may comprise from about 0.001%by weight to up to about 6%wt., preferably from 2.5%wt. to 5%wt., and most preferably 1.7%wt. to 4.1%wt. of the fragranced bleaching compositions of which they form a part.

The pH of the fragranced bleaching compositions according to the present invention can be from 0 to 14. In embodiments wherein the fragranced bleaching compositions comprise a peroxygen bleach, the recommended pH range of the fragranced bleaching compositions from 1 to 9, preferably from pH 1 to 8, more preferably a pH from 1 to 7 and most preferably a pH from 1 to 6. In order to achieve such a desired pH, the fragranced bleaching compositions may further comprise an acid to adjust pH. While any acid may be used, preferred are one or more organic acid, especially citric, maleic, oxalic, succinic, and tartaric acids, and similarly preferred are inorganic acids, especially sulphuric acid. Typically these acids are required only in minor amounts, and usually do not comprise more than 3%wt. of a fragranced bleaching composition of which they form a part.

In the preferred embodiment of the invention, wherein the fragranced bleaching compositions comprise a chlorine bleach, e.g., preferably an alkali metal hypochlorite, the recommended pH range of such fragranced bleaching compositions are from 8 to 14, preferably a pH of from 9 to 14, and more preferably a pH of from 9.5 to 13.5. It is in this alkaline range that the optimum bleach stability, and optimum performance of the hypochlorite is obtained; such stability and performance is attained in both undiluted ("neat") or when the fragranced bleaching compositions are diluted. Accordingly, if appropriate, the compositions of the present invention may comprise a strong source of

alkalinity. Examples of such alkaline constituents include alkali metal hydroxides, such as potassium and/or sodium hydroxide, or alkali metal oxides such as sodium and/or potassium oxide, of which sodium hydroxide is particularly preferred. When present, such alkaline constituents are preferably present in the range of from 0.04% to 5%wt., more preferably of from 0.1% to 2% wt. Desirably, one or more alkaline constituents are present in the inventive compositions comprise one or more chlorine bleaches.

The fragranced bleaching compositions may further comprise other optional constituents such as further bleach-stable surfactants (e.g., nonionic surfactants, anionic surfactants, cationic surfactants, zwitterionic surfactants and amphoteric surfactants) not already described herein, organic or inorganic alkalis, pigments, dyes, optical brighteners, solvents, buffers, builders, fragrance molecules which are bleach stable and which may be present in the aqueous phase, chelating agents, radical scavengers, stabilizers, bleach activators and the like.

For example, it is contemplated that a first bleach-stable coloring agent (pigment, and/or dyestuff) may be incorporated into the first aqueous bleach containing phase, usually included in small amounts, ultramarine blue (UMB) and copper phthalocyanines being examples of widely used bleach stable pigments which may be incorporated in the composition of the present invention, Examples are alpha- or beta- metal phthalocyanine dye, or mixtures thereof. Non-limiting examples of suitable alpha- or beta- metal phthalocyanine dyes to be used herein are bleach-stable dyes. The alpha- or beta- metal phthalocyanine dyes suitable to be used in the compositions of the present invention are light-fast organic pigments with four isoindole groups, $(C_6H_4)C_2N$, linked by four nitrogen atoms to form a conjugated chain. where the metal is copper, chromium, vanadium, magnesium, nickel, platinum, aluminium, cobalt, lead, barium or zinc. Preferred alpha- or beta- metal phthalocyanine dyes to be used herein are alpha- or beta- copper phthalocyanine dyes. Examples of such a copper phthalocyanine dyes to be used herein are copper phthalocyanine (X=H, blue color) commercially available under the name UNISPERSE Blue B-E® from Ciba-Geigy, or copper phthalocyanine (X=H, blue colour) commercially available under the name Cosmenyl blue A2R® from Hoechst, or chlorinated copper phthalocyanine (X=Cl, green color) commercially available under the

name Pigmosol Green 8730® from BASF. Desirably, when present the compositions of the present invention comprise from 0.005% to 0.02% by weight of the total composition of alpha- or beta- metal phthalocyanine dye, or mixtures thereof, preferably from 0.006% to 0.015% and more preferably from 0.006% to 0.012%. A different second coloring agent which is oil soluble (pigment, and/or dyestuff) may be incorporated into the second hydrophobic phase, oil soluble dyes that can be used as colorants in the present invention include those known from the Color Index including but not limited to, C.I. Solvent Yellow 3, C.I. Solvent Green 3, C.I. Acid Black 429, C.I. Solvent Red 207, C.I. Phthalo Blue, C.I. Solvent Violet 13, C.I. Disperse Violet 17, C.I. Solvent Yellow 14, C.I. Solvent Blue 36, C.I. Solvent Yellow 33, C.I. Solvent Red 149, C.I. Solvent Yellow 56, C.I. Solvent Yellow 90, C.I. Solvent Red 26, C.I. Solvent Yellow 29, C.I. Solvent Red 24, C.I. Solvent Yellow 16, C.I. Solvent Yellow 72, C.I. Solvent Blue 104, C.I. Solvent Yellow 93, C.I. Solvent Yellow 98, C.I. Disperse Yellow 64, C.I. Solvent Yellow 24, C.I. Solvent Orange 60, C.I. Vat Red 41, C.I. Solvent Red 195, C.I. Solvent Red 111, C.I. Solvent Red 179, C.I. Solvent Red 135, C.I. Solvent Red 63, C.I. Disperse Violet 26, C.I. Solvent Violet 37, C.I. Solvent Green 28, C.I. Solvent Yellow 133, C.I. Solvent Yellow 164, C.I. Solvent Blue 122, C.I. Solvent Violet 49, C.I. Solvent Brown 122, C.I. Solvent Red 91, C.I. Solvent Red 164, and C.I. Solvent Blue 98. Pigments can also be used as colorants in the present invention. Particularly preferred are pigments that can act as oil soluble dyes which include, but are not limited to, C.I. Pigment Yellow 74, C.I. Pigment Yellow 192, and families thereof which are available in the art; thereby providing a fragranced bleaching composition having two colors when the phases are separate. Such may be particularly attractive from a consumer standpoint.

Another class of optional compounds for use herein include chelating agents or mixtures to deactivate trace catalytic impurities, thereof. Exemplary suitable phosphonate chelating agents for use herein may include alkali metal ethane 1-hydroxy diphosphonates (HEDP), alkylene poly (alkylene phosphonate), as well as amino phosphonate compounds, including amino aminotri(methylene phosphonic acid) (ATMP), nitrilo trimethylene phosphonates (NTP), ethylene diamine tetra methylene phosphonates, and diethylene triamine penta methylene phosphonates (DTPMP). The

phosphonate compounds may be present either in their acid form or as salts of different cations on some or all of their acid functionalities. Preferred phosphonate chelating agents to be used herein are diethylene triamine penta methylene phosphonate (DTPMP) and ethane 1-hydroxy diphosphonate (HEDP). Such phosphonate chelating agents are commercially available from Monsanto under the trade name DEQUEST®.

Polyfunctionally-substituted aromatic chelating agents may also be useful in the compositions herein, as for example described in U.S. Pat. No. 3,812,044 to Connor et al., the contents of which are herein incorporated by reference. Preferred compounds of this type in acid form are dihydroxydisulfobenzenes such as 1,2-dihydroxy-3,5-disulfobenzene.

A preferred biodegradable chelating agent for use herein is ethylene diamine N,N'-disuccinic acid, or alkali metal, or alkaline earth, ammonium or substitutes ammonium salts thereof or mixtures thereof. Ethylenediamine N,N'-disuccinic acids, especially the (S,S) isomer have been extensively described in U.S. Pat. No. 4,704,233, issued Hartman et al., the contents of which are herein incorporated by reference. Ethylenediamine N,N'-disuccinic acids is, for instance, commercially available under the tradename ssEDDS® (ex. Palmer Research Laboratories.)

Suitable amino carboxylates for use herein included to deactivate trace catalytic impurities, including ethylene diamine tetra acetates (EDTA), diethylene triamine pentaacetates, diethylene triamine pentaacetate (DTPA), N-hydroxyethylethylenediamine triacetates, nitrilotri-acetates, ethylenediamine tetrapropionates, triethylenetetraaminehexa-acetates, ethanol-diglycines, propylene diamine tetracetic acid (PDTA) and methyl glycine di-acetic acid (MGDA), both in their acid form, or in their alkali metal, ammonium, and substituted ammonium salt forms. Particularly suitable amino carboxylates to be used herein are diethylene triamine penta acetic acid, propylene diamine tetracetic acid (PDTA) which is, for instance, commercially available from BASF under the trade name Trilon FS® and methyl glycine di-acetic acid (MGDA).

Further carboxylate chelating agents for use herein include salicylic acid, aspartic acid, glutamic acid, glycine, malonic acid or mixtures thereof. Chelating agents can be incorporated in the compositions herein in amounts ranging from 0.0% to 10.0% by weight of the total composition, preferably 0.1% to 5.0%.

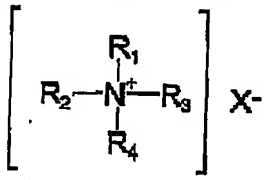
One class of stabilizer, particularly suitable for use with hydrogen peroxide are sodium stannate, sodium nitrate, and diethylene triamine penta(methylenephosphonic acid) as disclosed in U.S. Pat. No. 5,523,012 to Winterton et al., the contents of which are herein incorporated by reference. When present, such a stabilizer is present in an amount of not in excess of 10 %wt. of the active bleach constituent, but desirably are present from 0.03% wt. to 5% wt. of the active bleach constituent.

Buffers preferably comprise one or more of a pH adjusting agent effective to adjust or to maintain the pH of a solution, suitable pH adjusting agents, are well known to the art and include, for example, for hypochlorite carbonates, borates, phosphates, silicates, and bicarbonates, for peroxide bleach combinations of monobasic sodium phosphate and dibasic sodium phosphate. Other satisfactory buffer systems may be employed which give substantially equivalent results in buffering.

The invention may further optionally include a cationic surfactant, specifically, a quaternary ammonium surfactant which has bacteriostatic or disinfectant properties. These types of surfactants are typically used in bathroom cleaners because they are generally considered "broad spectrum" antimicrobial compounds, having efficacy against both gram positive and gram negative microorganisms. Thus, the quaternary ammonium surfactant, or compounds, are incorporated for purposes and should be present in amounts effective for such purposes. Any cationic surfactant which satisfies these requirements may be used and are considered to be within the scope of the present invention, and mixtures of two or more cationic surface active agents, *viz.*, cationic surfactants may also be used. Cationic surfactants are well known, and useful cationic surfactants may be one or more of those described for example in *McCutcheon's Functional Materials, Vol.2, 1998; Kirk-Othmer, Encyclopedia of Chemical Technology*, 4th Ed., Vol. 23, pp. 481-541 (1997), the contents of which are herein incorporated by

reference. These are also described in the respective product specifications and literature available from the suppliers of these cationic surfactants.

Examples of preferred cationic surfactant compositions useful in the practice of the instant invention are those which provide a germicidal effect to the concentrate compositions, and especially preferred are quaternary ammonium compounds and salts thereof, which may be characterized by the general structural formula:

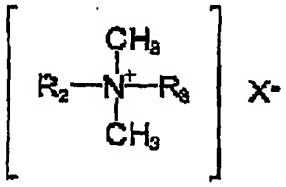


where at least one of R_1, R_2, R_3 and R_4 is a alkyl, aryl or alkylaryl substituent of from 6 to 26 carbon atoms, and the entire cation portion of the molecule has a molecular weight of at least 165. The alkyl substituents may be long-chain alkyl, long-chain alkoxyaryl, long-chain alkylaryl, halogen-substituted long-chain alkylaryl, long-chain alkylphenoxyalkyl, arylalkyl, etc. The remaining substituents on the nitrogen atoms other than the above mentioned alkyl substituents are hydrocarbons usually containing no more than 12 carbon atoms. The substituents R_1, R_2, R_3 and R_4 may be straight-chained or may be branched, but are preferably straight-chained, and may include one or more amide, ether or ester linkages. The counterion X may be any salt-forming anion which permits water solubility of the quaternary ammonium complex.

Exemplary quaternary ammonium salts within the above description include the alkyl ammonium halides such as cetyl trimethyl ammonium bromide, alkyl aryl ammonium halides such as octadecyl dimethyl benzyl ammonium bromide, N-alkyl pyridinium halides such as N-cetyl pyridinium bromide, and the like. Other suitable types of quaternary ammonium salts include those in which the molecule contains either amide, ether or ester linkages such as octyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride, N-(laurylcocoaminoformylmethyl)-pyridinium chloride, and the like. Other very effective types of quaternary ammonium compounds which are useful as germicides include those in which the hydrophobic radical is characterized by a substituted aromatic nucleus as in the case of lauryloxyphenyltrimethyl ammonium

chloride, cetylaminophenyltrimethyl ammonium methosulfate, dodecylphenyltrimethyl ammonium methosulfate, dodecylbenzyltrimethyl ammonium chloride, chlorinated dodecylbenzyltrimethyl ammonium chloride, and the like.

Preferred quaternary ammonium compounds which act as germicides and which are be found useful in the practice of the present invention include those which have the structural formula:



wherein R_2 and R_3 are the same or different C_8-C_{12}alkyl, or R_2 is C_{12-16}alkyl, C_{8-18}alkylethoxy, C_{8-18}alkylphenolethoxy and R_3 is benzyl, and X is a halide, for example chloride, bromide or iodide, or is a methosulfate anion. The alkyl groups recited in R_2 and R_3 may be straight-chained or branched, but are preferably substantially linear.

Particularly useful quaternary germicides include compositions which include a single quaternary compound, as well as mixtures of two or more different quaternary compounds. Such useful quaternary compounds are available under the BARDAC®, BARQUAT®, HYAMINE®, LONZABAC®, and ONYXIDE® trademarks, which are more fully described in, for example, *McCutcheon's Functional Materials* (Vol. 2), North American Edition, 1998, as well as the respective product literature from the suppliers identified below. For example, BARDAC® 205M is described to be a liquid containing alkyl dimethyl benzyl ammonium chloride, octyl decyl dimethyl ammonium chloride; didecyl dimethyl ammonium chloride, and dioctyl dimethyl ammonium chloride (50% active) (also available as 80% active (BARDAC® 208M)); described generally in *McCutcheon's* as a combination of alkyl dimethyl benzyl ammonium chloride and dialkyl dimethyl ammonium chloride); BARDAC® 2050 is described to be a combination of octyl decyl dimethyl ammonium chloride/didecyl dimethyl ammonium chloride, and dioctyl dimethyl ammonium chloride (50% active) (also available as 80% active (BARDAC® 2080)); BARDAC ® 2250 is described to be didecyl dimethyl

ammonium chloride (50% active); BARDAC® LF (or BARDAC® LF-80), described as being based on dioctyl dimethyl ammonium chloride (BARQUAT® MB-50, MX-50, OJ-50 (each 50% liquid) and MB-80 or MX-80 (each 80% liquid) are each described as an alkyl dimethyl benzyl ammonium chloride; BARDAC® 4250 and BARQUAT® 4250Z (each 50% active) or BARQUAT® 4280 and BARQUAT 4280Z (each 80% active) are each described as alkyl dimethyl benzyl ammonium chloride/alkyl dimethyl ethyl benzyl ammonium chloride. Also, HYAMINE® 1622, described as diisobutyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride (50% solution); HYAMINE® 3500 (50% actives), described as alkyl dimethyl benzyl ammonium chloride (also available as 80% active (HYAMINE® 3500-80)); and HYMAINE® 2389 described as being based on methyldodecylbenzyl ammonium chloride and/or methyldodecylxylene-bis-trimethyl ammonium chloride. (BARDAC®, BARQUAT® and HYAMINE® are presently commercially available from Lonza, Inc., Fairlawn, New Jersey). BTC® 50 NF (or BTC® 65 NF) is described to be alkyl dimethyl benzyl ammonium chloride (50% active); BTC® 99 is described as didecyl dimethyl ammonium chloride (50% active); BTC® 776 is described to be myrisalkonium chloride (50% active); BTC® 818 is described as being octyl decyl dimethyl ammonium chloride, didecyl dimethyl ammonium chloride, and dioctyl dimethyl ammonium chloride (50% active) (available also as 80% active (BTC® 818-80%)); BTC® 824 and BTC® 835 are each described as being of alkyl dimethyl benzyl ammonium chloride (each 50% active); BTC® 885 is described as a combination of BTC® 835 and BTC® 818 (50% active) (available also as 80% active (BTC® 888)); BTC® 1010 is described as didecyl dimethyl ammonium chloride (50% active) (also available as 80% active (BTC® 1010-80)); BTC® 2125 (or BTC® 2125 M) is described as alkyl dimethyl benzyl ammonium chloride and alkyl dimethyl ethylbenzyl ammonium chloride (each 50% active) (also available as 80% active (BTC® 2125 80 or BTC® 2125 M)); BTC® 2565 is described as alkyl dimethyl benzyl ammonium chlorides (50% active) (also available as 80% active (BTC® 2568)); BTC® 8248 (or BTC® 8358) is described as alkyl dimethyl benzyl ammonium chloride (80% active) (also available as 90% active (BTC® 8249)); ONYXIDE® 3300 is described as n-alkyl dimethyl benzyl ammonium saccharinate (95% active). (BTC® and ONYXIDE® are presently commercially available from Stepan Company, Northfield, Illinois.) Polymeric quaternary ammonium

salts based on these monomeric structures are also considered desirable for the present invention. One example is POLYQUAT®, described as being a 2-butenyldimethyl ammonium chloride polymer.

The germicidal constituent may be present in any effective amount, but generally need not be present in amounts in excess of about 5%wt. based on the total weight of the fragranced bleaching composition of which they form a part. The preferred germicidal cationic surfactant(s) may be present in the concentrated liquid disinfectant compositions in amounts of from about 0.001 % by weight to up to about 5% by weight, very preferably about up to 2.% by weight.

Other conventional but optional additives, although not particularly elucidated above may also be included in the present inventive compositions. These may be added in effective amounts, and they are to be selected such that their use in a fragranced bleaching composition will not deleteriously detract from the beneficial properties of the fragranced bleaching composition of which they form a part. Generally, such optional additives are present in minor amounts, and typically the total of the optional additives does not exceed 20%wt.; preferably does not exceed a total of 15%wt. of a fragranced bleaching composition wherein such optional additives are included.

According to certain particularly preferred embodiments, the fragranced bleaching compositions do not include a fabric softening constituent especially those based on quaternary ammonium compounds which contain a carbonyl moiety, such as disclosed, inter alia, in WO 01/98450.

The fragranced bleaching composition taught herein are largely aqueous, and water is included in order to comprise a *quantum sufficient* (q.s.) so to provide to 100%wt. Desirably, water comprises up to 75%wt., preferably from 40%wt. to 60%wt. of the total amount of the fragranced bleaching compositions. The water may be tap water, but is preferably distilled and is most preferably deionized water. If the water is tap water, it is preferably substantially free of any undesirable impurities such as organics or inorganics, especially minerals salts which are present in hard water.

Fragranced bleaching compositions of the present invention can be prepared in a conventional manner such as by simply mixing the constituents in order to form the ultimate composition. However, it may in certain circumstances be desired to first combine the fragrance composition with the water insoluble oil to form a first premixture, and separately combine all of the constituents forming the aqueous phase to form a second premixture, and then subsequently with appropriate stirring combine the first premix with the second aqueous phase in order to form a fragrance bleaching composition according to the present invention. Yet more preferably however, all of the constituents other than the water insoluble oil constituent and the fragrance constituent are added to a portion of (or to the total amount) of water, and then well mixed to form a first premixture. Desirably, under moderate stirring, any alkaline constituents are first added to the water, followed by the surfactants, followed by the bleach constituent and then any remaining amount of water. This mixture is stirred until uniform; generally in laboratory scale equipment such is attained after approximately 15 minutes of continuous stirring. A second premixture is produced comprising the water insoluble oil constituent and the fragrance constituent which is separately well stirred until the fragrance is uniformly mixed in water insoluble oil constituent. Thereafter this second premixture is added to the first premixture under stirring, and stirring is continued for a further period until uniform, after which fragrance bleaching composition is ready for use.

Several key technical benefits are enjoyed by the fragranced bleaching compositions of the invention. First, due to the separation into distinct and visible phases, the fragrance constituent is separated from the bleach, essentially all of which remains in the aqueous phase. Such accounts for the improved fragrance stability of the fragranced bleaching compositions as well. As has been noted above, bleaching constituents are typically deleterious to fragrance constituents, and this phases separation provided by the inventive compositions ensures the stability, and duration of the fragrance constituent. Additionally, due to this phase separation, the fragrance constituent is separated from contact with the bleach and is thereby "protected", and this permits for the use of a much broader range of fragrance molecules, permitting for the use of virtually all known art

fragrance molecules as the fragrance constituents in the present inventive compositions. Whereas in the past only a limited number of bleach stable fragrance molecules could be used, the present inventive compositions permit for a much broader range of potential fragrance compositions. Most of the fragrances are oil soluble and thus part of the hydrophobic phase. However, water soluble, bleach stable fragrances may also be used as optional ingredients as already described above. Preferably however, essentialy all of the fragrance constituent will partition in the hydrophobic phase and only relatively low amounts of fragrances will be present in the hydrophilic phase. By "essential all" is meant about 90% wt. or more, more preferably about 95% wt. or more, e.g. 98 – 99.5% wt. Second, due to the separation into distinct phases, it is foreseen that such can be attractive from a consumer standpoint. For example, different coloring agents could be provided to each of the separate phases, and when the fragranced bleaching composition is permitted to stand and separate, an attractive product having at least two different colors is made available to the consumer. Furthermore, given that substantial all of the fragrance constituent is located in a hydrophobic phase which, and when permitted to stand, forms a layer above the aqueous phase after phase separation, the user is presented with an sudden exposure to fragrance, a "burst of fragrance" upon opening a package, e.g. a bottle, containing a composition according to the present invention compared with aqueous dispersion systems wherein the fragrance constituent is dispersed throughout the composition in a less concentrated manner. Such a burst of fragrance is an olfactory attribute highly desired from a consumer standpoint. Additionally, as it is typically required that the fragranced bleaching compositions be shaken by a consumer before use, appropriate selection of colors to form attractive blends having a different color could be viewed as being commercially attractive, and also as an indicator of a proper amount of mixing to a consumer.

In a further aspect of the invention there are provided processes for improving the fragrance stability of liquid bleach containing compositions which processes contemplate the steps of forming a bleaching composition in accordance with any of the aspects of the present inventive teaching. The resultant fragranced bleaching compositions feature good fragrance stability, and particularly feature good stability of any fragrance constituents present in the compositions.

The fragranced bleaching compositions according to the present invention are useful in the bleaching of an article, i.e., a porous article such as a textile, garment or fabric by contacting the article with a bleaching effective amount of the fragranced bleaching compositions being described herein.

The fragranced bleaching compositions according to the present invention may also be used in the sanitizing and/or bleaching of non-porous articles or surfaces such as a hard surfaces and the like, by contacting these surfaces with a sanitizing effective and/or bleaching effective amount of one or more of the fragranced bleach compositions described herein. Exemplary hard surfaces include surfaces composed of refractory materials such as: glazed and unglazed tile, brick, porcelain, ceramics as well as stone including marble, granite, or other stones surfaces; glass; metals; plastics e.g. polyester, vinyl; fiberglass, Formica®, Corian® and other hard surfaces. In such an application, the water insoluble oil phase is preferably selected to have a vapor pressure greater than 0.1 mm mercury at 25°C so as to not to leave an oily feel on the surface.

The following examples below illustrate exemplary formulations, including certain preferred embodiments of the fragranced bleaching compositions according to the instant invention. It is to be understood that these examples are presented by means of illustration only and that further useful formulations fall within the scope of this invention and the claims may be readily produced by one skilled in the art and not deviate from the scope and spirit of the invention.

Examples

Compositions representative of the inventive compositions are provided in Table 1. Each of the constituents in formulations reported in Table 1 are indicated in %wt, water was provided in quantum sufficient to provide a total weight of 100% for each formulation.

Table 1

Example	A	B	C	D	E	F	G	H
sodium hypochlorite (12% active)	14.10	14.10	14.10	15.52	15.53	14.10	15.52	15.52
sodium hydroxide (50% active)	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
isopropanol	5.33	5.33	5.33	5.33	6.00	5.33	5.33	5.33
oleic acid	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
alkoxylated linear alcohol	3.11	3.11	3.11	3.11	3.11	3.11	3.11	3.11
alkoxylated fatty alcohol	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
amine oxide (30% active)	9.92	9.92	9.92	9.92	9.92	9.92	9.92	9.92
sulfosuccinate	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
sulfate	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
isoparaffinic hydrocarbon	11.11	--	--	--	--	--	--	--
d-limonene	--	11.31	11.31	--	--	--	--	5.00
pine oil	--	--	--	--	--	11.31	5.00	--
orange oil terpene	--	--	--	5.00	--	--	--	--
cycloparaffinic hydrocarbons	--	--	--	--	5.00	--	--	--
fragrance	0.20	0.30	--	--	0.30	--	--	--
deionized water	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.

Each individual composition was produced in accordance with the following general protocol. First, the deionized water was provided to a standard laboratory mixing vessel which included a conventional electrically powered rotary agitator, whose shafts and propeller blades extended downwardly into the mixing vessel. The rotary agitator was started, and with moderate stirring the sodium hydroxide was first added and the composition was mixed until homogenous. Next, under continued stirring, the following constituents were added to the contents of the mixing vessel in the following order: isopropanol, oleic acid, the alkoxylated linear alcohol, the alkoxylated fatty alcohol, the sulfosuccinate, the amine oxide, and the sulfate. (Where a constituent was omitted, it was merely omitted in the sequence described herein.) Stirring was permitted to continue until the mixture was homogenous, after which the stirring was permitted to continue for a further 10 minutes, than adding the bleach constituent. During this time interval, a premixture was produced in a different, but similar standard laboratory mixing vessel including a conventional electrically powered rotary agitator by combining the water insoluble oil constituent, with the fragrance. It will be realized that

the water insoluble oil constituent varied amongst the individual formulations, and was one of: isoparaffinic hydrocarbons, d-limonene, pine oil, orange oil terpenes, or cycloparaffinic hydrocarbons. Make sure that the water insoluble oil constituent and the fragrance was thoroughly mixed until homogenous, after which it was introduced to the aqueous mixture in the first mixing vessel under stirring. Again, stirring was continued until the mixture appeared homogenous, and thereafter stirring continues for a further 10 minutes. Afterwards, the fragranced bleaching composition thus produced was removed from the standard laboratory mixing vessel.

The specific identity of the constituents used in the formulations according to Table 1 is presented in following Table 2.

Table 2

sodium hypochlorite (12% active)	an aqueous sodium hypochlorite solution about 12% (ex. VWR International Ltd. Poole, Dorset UK)
sodium hydroxide (50% active)	aqueous sodium hydroxide solution 50% (ex. VWR International Ltd. Poole, Dorset UK)
isopropanol	supplied as isopropanol (ex. Haymen Ltd. Witham , Essex UK)
oleic acid (about 98%wt. actives)	supplied as PRIOLENE® 6992 (ex. Uniquema/Anstead Intl.)
alkoxylated linear alcohol (100%wt. actives)	C_{13}-C_{15} ethoxylated linear alcohol, avg. 3 EO per molecule, supplied as LUTENSOL A03 (ex. BASF AG)
alkoxylated fatty alcohol (90-100%wt. actives)	C_{12}-C_{18} mixed (linear and branched) alcohol, alkoxylated with ethoxy and butoxy groups, supplied as PLURAFAC LF22 (ex. BASF AG)
amine oxide (30% active)	alkyl C_{10}-C_{16} dimethyl amine oxide, supplied as EMPIGEN OB (ex. Hunstmann Chem. Co.)
Sulfosuccinate (75%wt. actives)	sodium dioctyl sulfosuccinate, supplied as REWOPOL SBDO 75 (ex. Goldschmidt AG) or as MACKANATE DOS-75
Sulfate (40%wt. actives)	sodium 2-ethylhexyl sulfate, supplied as REWOPOL D510 (ex. Goldschmidt AG)
isoparaffinic hydrocarbon	technical grade mixture of isoparaffinic hydrocarbons, supplied as ISOPAR E (ex. ExxonMobil Chemical Co.)
d-limonene	Ref. No. 10901430003, ex Inernatio N.V., Belgium
pine oil	SA133379, ex R.C. Treat & Co. Ltd., UK
orange oil terpene	SA133377, ex R.C. Treat & Co. Ltd., UK
cycloparaffinic hydrocarbons	technical grade mixture of cycloparaffinic hydrocarbons supplied as Nappar® 6 (ex. ExxonMobil Chemical Co.)
fragrance	The fragrance comprises agrumex, decalactone gamma, manzanate, tetrahydolinalol, peonile, galbanone, diphenyloxide, damascenone total, galaxolide and hexyl isobutyrate.
deionized water	deionized water

The viscosity of the compositions produced on Table 1 was evaluated at ambient room temperature (20°C) using a Brookfield LVT viscometer, using spindle #2, at 60 RPM; each of the formulations was manually shaken prior to testing. The results were reported in centipoise-seconds (cps), and are listed on Table 3.

Table 3

Example	Viscosity (cps)
A	55 - 65
C	45 – 55
D	30 – 40
E	45 - 55

Compositions representative of the further aspect of the inventive compositions, wherein the water insoluble oil is a conventional fragrance constituent are provided in Table 4. Each of the constituents in formulations reported in Table 4 are indicated in %wt of the named constituent, based on a total weight of 100% for each formulation.

Table 4

Example	I	J	K	L	M
sodium hypochlorite (12% active)	22.50	14.66	17.26	17.26	22.50
sodium hydroxide (50% active)	1.3	1.3	1.3	1.3	1.3
sulfosuccinate	14	14	14	14	14
sulfate	2	5	2	2	2
d-limonene	10	15	10	10	2
isopropyl myristate	10	--	--	--	
isoparaffinic hydrocarbons	--	--	--	--	8
fragrance	--	--	--	0.20	0.3
deionized water	q.s.	q.s.	q.s.	q.s.	q.s.

Each individual composition of Table 4 was produced in accordance with the general protocol described with reference to the compositions of Table 1. It is to be noted that the fragrance constituent in Example I to K was satisfied by the presence of the d-limonene but which provided a citrus scent to the overall compositions, and which also functioned as at the water insoluble oil constituent. Additionally, one of the

formulations also included isopropyl myristate (supplied as CRODAMOL® IPM, above 98%wt. actives, ex. Croda Oleochemicals Ltd. Goole, East Yorkshire, UK) or isoparaffinc hydrocarbon respectively which functioned in the compositions of Table 4 as a water insoluble oil constituent. The remaining constituents in the formulations of Table 4 are described in Table 2.

The viscosity of the compositions produced on Table 4 was evaluated at ambient room temperature (20°C) using a Brookfield LVT viscometer, using spindle #2, at 60 RPM; each of the formulations was manually shaken prior to testing. The results were reported in centipoise-seconds, and are listed on Table 5.

Table 5

Example	Viscosity (cps)
I	10
J	7.5
K	7.5

Certain of the compositions according to Table 1, and Table 4 were evaluated in order to determine their phase separation. After being produced by mixing as described above, the compositions were visually observed in order to determine when the first indications of phase separation appeared, and thereafter visually observed in order to determine when complete separation into two discernible clear layers was observed. These observations are reported on the following Table 6.

Table 6

Example	Initial Phase Separation*	Final Phase Separation**
A	15 minutes – hazy upper layer	4 – 5 hours, formed 2 clear layers
C	30 minutes – hazy upper layer/hazy lower layer	5 - 6 hours, formed 2 clear layers
I	30 minutes – hazy upper layer/hazy lower layer	5 - 6 hours, formed 2 clear layers
J	30 minutes – hazy upper layer/hazy lower layer	5 - 6 hours, formed 2 clear layers
K	30 minutes – hazy upper layer/hazy lower layer	5 - 6 hours, formed 2 clear layers

*: clear separation occurring but at least on of the layers are hazy

**: phase separation forming 2 clear layers with essentially no turbidity

As has been described herein, the fragranced bleaching compositions according to the present invention provide for a unique composition which is very adaptable to be used and formulated for consumer use. The final phase separation of these fragranced bleaching compositions upon standing, particularly after approximately 4-6 hours, provides products which can be formulated to be very attractive both on a store shelf, as well as in a consumer's home. The phase separation of the fragranced bleaching compositions also acts to protect the fragrance constituent, and as has been previously described, now permits for the use of fragrance constituents which had previously been impossible, or impractical for use within bleach containing compositions.

Claims:

1. A fragranced bleaching composition, which composition comprises at least two visually distinct phases, there being a hydrophobic phase containing a fragrance constituent and an aqueous phase containing a bleach constituent, the composition being provided with a thickening constituent adapted to impart to the composition when mixed and dispensed a viscosity of at least 5 cps.

2. A process for improving the fragrance stability of liquid bleach containing compositions which process includes the steps of forming a fragranced bleaching composition comprising an aqueous phase containing a bleach constituent, and a hydrophobic phase containing the fragrance, the composition comprises at least two visually distinct phases, and the composition being provided with a thickening constituent adapted to impart to the composition when mixed and dispensed a viscosity of at least 5 cps .

3. A process for bleaching an article which comprises the step of: contacting the article with a bleaching effective amount of the fragranced bleaching compositions according to claim 1 or 2.

4. A process for sanitizing a non-porous articles which comprises the step of: contacting the article with a sanitizing effective amount of the fragranced bleaching compositions according to claim 1 or 2.

Abstract:

The present invention provides fragranced bleaching compositions which feature improved fragrance stability, which compositions comprise an aqueous phase, and a hydrophobic phase.